

REMARKS

Claims 1–23 and 30 are pending in this application. Non-elected claims 1–8, 12–23, and 30 are withdrawn from consideration by the Examiner.

The courtesies extended to Applicants' representative by Examiner Speer at the interview held October 6 are appreciated. The reasons presented at the interview as warranting favorable action are incorporated into the remarks below, which constitute Applicants' record of the interview.

I. Rejection Under 35 U.S.C. §103

The Office Action rejects claims 9–11 under 35 U.S.C. §103(a) over Takabatake (U.S. Patent No. 3,927,223) in view of Sudhakar (U.S. Patent No. 5,525,211). Applicants respectfully traverse the rejection.

The Office Action acknowledges that Takabatake teaches the use of NiO and fails to teach the use of CaO, as required by claim 9. The Office Action asserts that Sudhakar teaches that NiO and CaO are functional equivalents in spinel materials and that Sudhakar cures the aforementioned deficiency of Takabatake. Applicants disagree. There is no teaching in Sudhakar, particularly in column 4, lines 5-9 (Office Action's citation), to suggest that NiO and CaO are functional equivalents in spinel materials.

Sudhakar is directed to a selective catalyst to use in the hydrodesulfurization (HDS) of cracked naphtha. *See* column 1, lines 25-29. The catalysts are prepared on spinel supports selected from: MgAl₂O₄, ZnAl₂O₄, CaAl₂O₄, NiAl₂O₄, CoAl₂O₄, or BaAl₂O₄. *See* column 1, lines 61-63. Sudhakar further discloses, "The spinel supports can contain not more than 5% by weight of non-stoichiometric excess alumina or the corresponding oxides such as MgO, ZnO, CaO, NiO, Co Oxides, and BaO." *See* column 4, lines 6-9 (emphasis added).

The language "corresponding oxides such as MgO, ZnO, CaO, NiO, Co Oxides, and BaO" does not mean that the different oxides are "functional equivalents" as asserted by the Office Action. Instead, Sudhakar is referring to the non-stoichiometric excess oxides that respectively correspond to the listed spinel supported compounds. For example, MgAl_2O_4 spinel may have mixed with it a non-stoichiometric amount of MgO; ZnAl_2O_4 spinel may have mixed with it a non-stoichiometric amount of ZnO; CaAl_2O_4 spinel may have mixed with it a non-stoichiometric amount of CaO; etc. See, for example, "EXAMPLE 1" at column 6, lines 52-62, where MgAl_2O_4 spinel powder is analyzed by X-ray diffraction to show "no detectable MgO or Al_2O_3 ."

Thus, the oxides referred to by Sudhakar are the non-stoichiometric excess or, in other words, the excess unreacted oxide used to produce a particular type of spinel. Whereas Sudhakar discloses minimizing or eliminating the non-stoichiometric excess amount of an oxide in its corresponding spinel, Applicants' disclosure teaches introducing regions of oxide imbalance in a spinel coating to increase a concentration of effective interface and defects zones, oriented grain boundaries, and microcracks in the coating (see specification, page 4). As such, the combination of Takabatake and Sudhakar would not have taught or suggested the vibration-dampened structure according to claim 9.

For at least the reasons discussed above, Takabatake and Sudhakar would not have rendered obvious claim 9 and its dependent claims. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

II. Rejoinder

Each of the pending claims have in common materials that comprise 1) a spinel having regions of oxide or nitride that vary from a stoichiometric spinel ratio, or regions of oxide and nitride that vary from a stoichiometric spinel ratio, 2) calcium oxide, and 3) at least about 85,000 effective interface and defect zones per surface square millimetre, or at least

about 100,000 orientated grain boundaries and microcracks per surface square millimetre, or both.

Because these features are believed to distinguish over the prior art for at least the reasons discussed above, all the claims share a special technical feature. As such, Applicants respectfully submit that unity of invention exists between the claims and, thus, request withdrawal of the restriction requirement and rejoinder of the withdrawn claims.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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